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FOREST RESOURCES OF ILLINOIS

CENTRAL STATES
FOREST EXPERIMENT STATION
Columbus 15, Ohio
Harold L. Mitchell, Director

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FOREST RESOURCES OF ILLINOIS

BY

THE FOREST SURVEY ORGANIZATION
Central States Forest Experiment Station

in cooperation with

THE AGRICULTURAL EXPERIMENT STATION
University of Illinois

and

THE DIVISION OF FORESTRY
Illinois Department of Conservation

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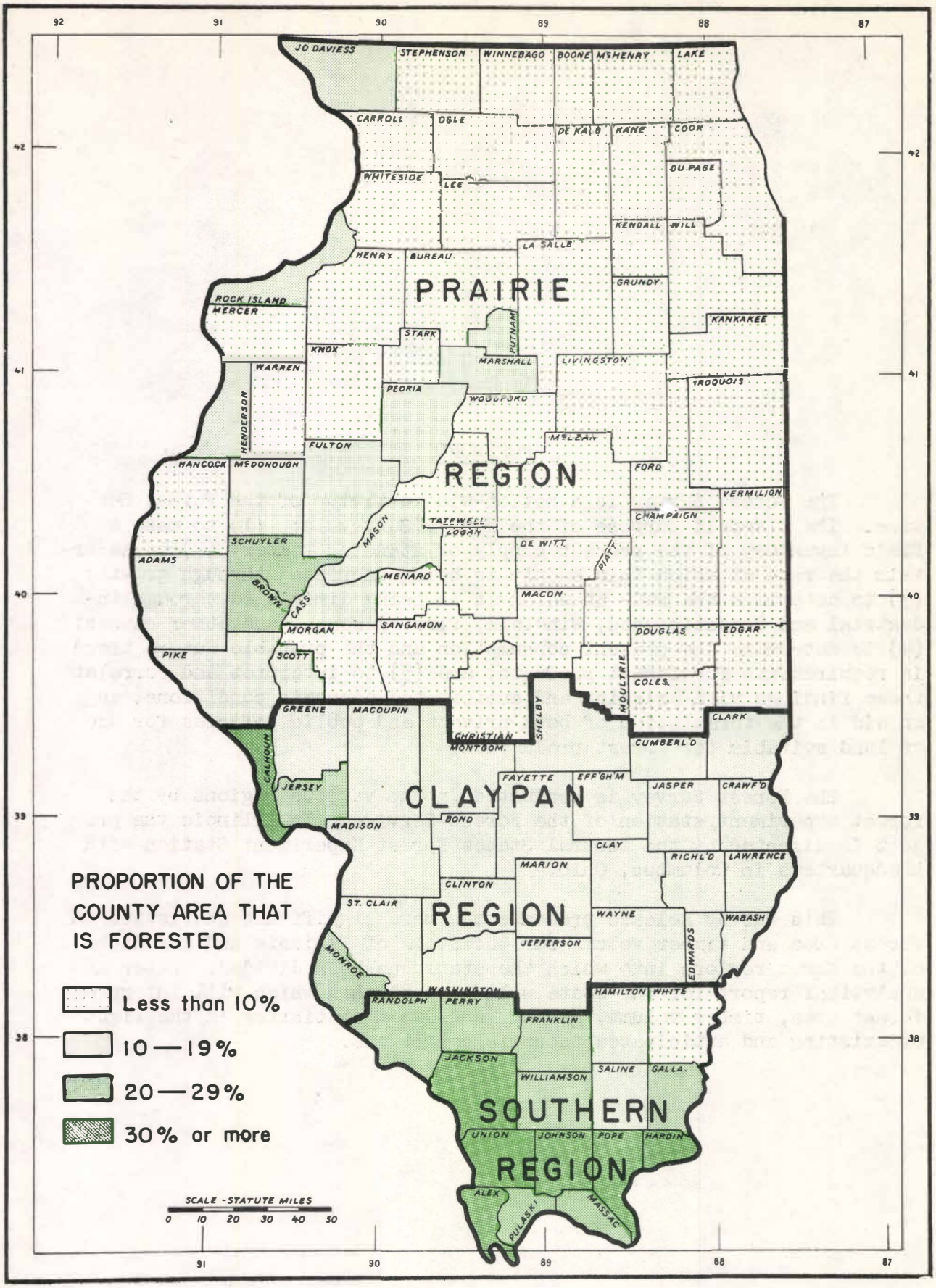
FOREWORD

The Forest Survey is a nation-wide activity of the Forest Service. The fivefold purpose of the Forest Survey is: (1) to make a field inventory of the present supply of standing timber; (2) to ascertain the rate at which this supply is being increased through growth; (3) to determine the rate at which it is being diminished through industrial and domestic uses, windfall, fire, disease, and other causes; (4) to determine the present consumption and the probable future trend in requirements for forest products; and (5) to interpret and correlate these findings with existing and anticipated economic conditions, as an aid in the formulation of both private and public policies for use of land suitable for forest production.

The Forest Survey is conducted in the various regions by the forest experiment station of the Forest Service. In Illinois the project is directed by the Central States Forest Experiment Station with headquarters in Columbus, Ohio.

This Survey Release presents the more significant statistics on forest area and timber volume for the state of Illinois and for each of the three regions into which the state has been divided. Later an analytical report for the state will be published which will interpret forest area, timber volume, growth, and drain statistics in the light of existing and anticipated economic conditions.



LOCATION OF FOREST SURVEY REGIONS IN ILLINOIS AND THE PROPORTION OF THE AREA OF EACH COUNTY THAT IS FORESTED

SIGNIFICANT FACTS CONCERNING THE FOREST RESOURCES OF ILLINOIS

The forest area of Illinois, as determined by the Forest Survey, is 3,996,000 acres or 11 percent of the total land area. The proportion of forest land is highest in the Southern region where 26 percent of the land is in forest. Two counties in this region, Pope and Alexander, are more than 40 percent forested. The Claypan region averages 16 percent forest land with one county, Calhoun, reaching 43 percent. In the Prairie region much of the area was open grassland at the time of settlement. Most of the 1.6 million acres of forest land in this region is in the counties bordering the Mississippi and Illinois Rivers, and the remainder occurs principally in small scattered patches.

Ninety-five percent of the commercial forest land in the state is in private ownership. The Shawnee National Forest in the Southern region contains 3.7 percent of the forest land in the state and other federal and state agencies account for 1.1 percent. Most of the private forest land is in small farm woodlands, although some large areas of privately owned forest land occur along the Mississippi, Ohio, Wabash, and Illinois Rivers.

The oak-hickory type occurs on nearly half of the forest area in the state and predominates in the upland areas of all regions. The proportion of oak-hickory type is greatest in the Southern region and least in the Prairie region. The white oak type, which comprises 9 percent of the forest area of the state, is more prevalent in the north than in the south. Similarly the mixed hardwood type, in which elm, basswood, and maple are the principal species, occupies a larger proportion of the forest land in the northern portion of the state. The pin oak type is largely confined to poorly drained areas of the two southern regions. The bottomland hardwood type occurs along the major rivers and makes up nearly one-fifth of the forest area of the state. It is rather uniformly represented in all regions and is one of the most important timber-producing types in the state.

Timber stands with sufficient volume to be classed as saw timber occur on 46 percent of the commercial forest land in the state. More than two-thirds of the saw-timber area contains enough volume in trees 15 inches d.b.h. and larger to be classed as large saw-timber area. Pole-timber stands make up 25 percent of the forest area of the state, seedling and sapling 19 percent, and poorly stocked areas 10 percent. The distribution of forest area by stand-size class varies but little from region to region.

The net volume of saw timber in the state is 10.3 billion board feet. Nearly 70 percent of this volume is found in large saw-timber stands and 19 percent in small saw-timber stands. The remaining 11 percent is in scattered trees in the other stand-size classes. The distribution of volume by stand-size class in each of the regions is similar to the state average.

Oak species make up 56 percent of the board-foot volume in the state and white oak alone accounts for 20 percent of the total. Black oak and northern red oak each make up 10 percent of the total volume. Other species of importance are elm (10 percent), hickory (7 percent), and soft maple (6 percent). In general the proportion of white oak, northern red oak, and elm in the stands increases from south to north. Hickory, on the other hand, is less important in the northern part of the state. Softwood species are of minor importance throughout the state.

Less than one-third of the saw-timber volume in the state is in grade 1 and 2 logs. These logs produce the high-quality material required by the cooperage, veneer, and furniture industries. The large proportion of low-quality timber presents a serious problem in forest utilization and management.

The volume of the forest growing stock--the sawlog portion of merchantable trees of sawlog size and the stems of sound pole-timber trees--is 2.4 billion cubic feet. One-third of this volume is in trees of pole-timber size. In addition to the growing stock there is 1.7 billion cubic feet in tops and limbs of saw-timber trees and in the sound portion of cull trees. Although very little of this is now being utilized it is a large volume of wood awaiting an economic use.

The average volume per acre of all species on all commercial forest land in the state is 2,625 board feet. Areas classed as large saw timber averaged 5,726 board feet per acre and small saw-timber areas averaged 3,424 board feet. The average volume per acre in the three regions were similar to the state average. The average volume per acre of all growing stock was 608 cubic feet with a range from 75 cubic feet per acre in seedling and sapling areas to 1,052 cubic feet in large saw-timber areas.

STATE TABLES

STATE OF ILLINOIS

Table 1.--Forest and nonforest area by regions, 1948

Region	Total land area 1/	Forest area		Nonforest area	
	Thousand acres	Thousand acres	Percent	Thousand acres	Percent
Southern	3,942	1,042	26	2,900	74
Claypan	8,487	1,356	16	7,131	84
Prairie	23,377	1,598	7	21,779	93
All regions	35,806	3,996	11	31,810	89

1/ Source: Area of United States 1940, U. S. Bureau of the Census.

Table 2.--Commercial forest area by ownership class, 1948

Ownership class	Commercial forest area 1/	
	Thousand acres	Percent
Federal:		
National forest	147	3.7
Other	32	.8
Total	179	4.5
State	10	.3
Private	3,752	95.2
All ownerships	3,941	100.0

1/ Does not include 55 thousand acres of forest land classified as noncommercial.

Table 3.--Commercial forest area by forest type and stand-size class, 1948

Forest type	Total		Large saw-timber area	Small saw-timber area	Pole-timber area	Seedling and sapling area	Poorly stocked area
	Thousand acres	Percent	Thousand acres				
Oak-hickory	1,859	47.2	470	269	511	481	128
White oak	369	9.4	186	99	43	18	23
Mixed hdwd.	539	13.7	170	61	196	96	16
Pin oak flats	275	7.0	104	65	63	24	19
Bottomland hdwd.	767	19.4	321	79	163	90	114
Scrub hdwd.	132	3.3	0	0	7	20	105
All types	3,941		1,251	573	983	729	405
Percent		100.0	31.8	14.5	24.9	18.5	10.3

Table 4.--Saw-timber volume by species and stand-size class, 1948

Species	Total		Large saw-timber area	Small saw-timber area	Pole-timber area	Seedling and sapling area	Poorly stocked area
	Million bd. ft.	Percent	Million board feet				
Redcedar and cypress	40	0.4	17	22	0	1	0
White oak	2,117	20.5	1,392	513	115	49	48
Post-oak group	870	8.4	569	151	101	11	38
Black oak	1,095	10.6	759	227	82	14	13
Northern red oak	1,036	10.0	830	133	57	16	0
Other red oaks	714	6.9	428	184	60	26	16
Hickory	700	6.8	442	157	76	8	17
Elm	1,020	9.9	678	155	100	35	52
Soft maple	633	6.1	515	65	20	5	28
Sugar maple	231	2.2	161	35	6	26	3
Sycamore	314	3.0	232	25	12	4	41
Ash	273	2.6	201	61	10	1	0
Basswood and yellow-poplar	181	1.7	149	14	12	0	6
Cottonwood	299	2.9	196	85	14	2	2
Black walnut	167	1.6	130	24	4	4	5
Other hardwoods	656	6.4	464	111	69	2	10
All species	10,346		7,163	1,962	738	204	279
Percent		100.0	69.2	19.0	7.1	2.0	2.7

Table 5.--Saw-timber volume by species and tree-diameter class, 1948

Species	Total	12-14 inches	16-18 inches	20-22 inches	24-26 inches	28 inches and larger
	Million board feet					
Redcedar and cypress	40	21 1/	5	0	6	8
White oak	2,117	776	741	325	155	120
Post-oak group	870	230	280	217	73	70
Black oak	1,095	244	357	248	160	86
Northern red oak	1,036	208	301	190	168	169
Other red oaks	714	209	174	114	162	55
Hickory	700	325	229	104	24	18
Elm	1,020	335	320	182	91	92
Soft maple	633	157	153	130	105	88
Sugar maple	231	80	83	48	4	16
Sycamore	314	33	62	65	82	72
Ash	273	109	89	47	28	0
Basswood and yellow-poplar	181	37	46	45	19	34
Cottonwood	299	64	71	70	42	52
Black walnut	167	91	47	15	6	8
Other hardwoods	656	203	149	121	135	48
All species	10,346	3,122	3,107	1,921	1,260	936
Percent	100.0	30.2	30.0	18.6	12.2	9.0

1/ Includes 5 million board feet in 10-inch trees.

Table 6.--Hardwood saw-timber volume by species group and percentage distribution in log grades, 1948

Species group	Volume	Log grade 1	Log grade 2	Log grade 3
	Million bd. ft.	Percent		
White oaks 1/	2,987	6.9	18.3	74.8
Red oaks 2/	2,845	13.1	18.9	68.0
Other hardwoods	4,474	12.1	16.8	71.1
All hardwoods	10,306	11.0	17.9	71.1

1/ Includes white oak and post-oak group.
2/ Includes black oak, northern red oak, and other red oaks.

Table 7.--Total cubic volume of sound wood by species and class of material, 1948

Species	Total	Growing stock			Tops & limbs	Cull trees
		Total	Saw-timber trees	Pole-timber trees		
	Million cubic feet					
Redcedar and cypress	11.8	11.7	10.2 1/	1.5	--	0.1
White oak	694.6	427.2	320.2	107.0	223.5	43.9
Post-oak group	320.4	185.6	131.9	53.7	93.4	41.4
Black oak	366.2	218.8	165.9	52.9	117.7	29.7
Northern red oak	304.3	177.8	152.6	25.2	106.3	20.2
Other red oaks	279.0	168.5	109.1	59.4	77.8	32.7
Hickory	309.3	214.7	111.6	103.1	79.3	15.3
Elm	483.7	286.6	160.1	126.5	113.2	83.9
Soft maple	315.2	147.9	99.3	48.6	73.7	93.6
Sugar maple	88.5	55.4	35.5	19.9	25.0	8.1
Sycamore	97.2	56.0	47.4	8.6	33.7	7.5
Ash	154.0	96.7	43.1	53.6	30.6	26.7
Basswood and yellow-poplar	76.0	34.8	27.0	7.8	19.0	22.2
Cottonwood	86.0	50.0	45.7	4.3	32.0	4.0
Black walnut	93.4	60.1	26.6	33.5	18.8	14.5
Other hardwoods	364.1	202.4	101.2	101.2	72.3	89.4
Noncommercial species	14.6	--	--	--	--	14.6
All species	4,058.3	2,394.2	1,587.4	806.8	1,116.3	547.8
Percent	100.0	59.0	39.1	19.9	27.5	13.5

1/ Includes tops of redcedar and cypress trees.

Table 8.--Cubic volume of growing stock by species and stand-size class, 1948

Species	Total		Large saw-timber area	Small saw-timber area	Pole-timber area	Seedling and sapling area	Poorly stocked area
	Million cu. ft.	Percent	Million cubic feet				
Redcedar and cypress	11.7	0.5	3.3	7.5	0.2	0.3	0.4
White oak	427.2	17.8	237.7	113.7	57.3	9.9	8.6
Post-oak group	185.6	7.8	97.4	39.0	40.1	2.6	6.5
Black oak	218.8	9.1	118.8	50.2	45.0	2.9	1.9
Northern red oak	177.8	7.4	128.2	28.5	17.5	3.6	0
Other red oaks	168.5	7.0	75.0	47.9	38.0	4.9	2.7
Hickory	214.7	9.0	104.3	54.4	48.6	4.0	3.4
Elm	286.6	12.0	147.0	50.7	69.7	10.0	9.2
Soft maple	147.9	6.2	108.7	22.3	11.5	.9	4.5
Sugar maple	55.4	2.3	32.8	10.6	7.7	3.9	.4
Sycamore	56.0	2.3	36.8	5.3	6.8	.6	6.5
Ash	96.7	4.0	48.5	21.4	26.1	.7	0
Basswood and yellow-poplar	34.8	1.5	25.8	3.7	3.7	.6	1.0
Cottonwood	50.0	2.1	29.9	16.6	2.7	.4	.4
Black walnut	60.1	2.5	29.8	8.3	16.2	1.0	4.8
Other hardwoods	202.4	8.5	92.5	34.0	63.8	8.3	3.8
All species	2,394.2		1,316.5	514.1	454.9	54.6	54.1
Percent		100.0	55.0	21.5	19.0	2.3	2.2

Table 9.--Cubic volume of growing stock by stand-size class and tree-diameter class, 1948

Stand-size class	Total	6-8 inches	10 inches	12-14 inches	16-18 inches	20-22 inches	24-26 inches	28 inches and larger
	Million cubic feet							
Large saw-timber area	1,316.6	125.8	108.8	217.8	345.4	243.3	148.2	127.3
Small saw-timber area	514.0	97.2	104.2	203.4	80.6	18.5	7.2	2.9
Pole-timber area	454.9	224.4	113.7	66.3	28.4	10.7	10.5	.9
Seedling and sapling area	54.6	15.8	6.6	13.6	11.2	4.8	1.3	1.3
Poorly stocked area	54.1	7.1	4.7	7.8	10.9	6.0	16.5	1.1
All classes	2,394.2	470.3	338.0	508.9	476.5	283.3	183.7	133.5
Percent	100.0	19.6	14.1	21.3	19.9	11.8	7.7	5.6

Table 10.--Average volume per acre by stand-size class and region, 1948

Stand-size class	All regions	Southern	Claypan	Prairie
BOARD-FOOT VOLUME				
Large saw-timber area	5,726	5,883	5,548	5,784
Small saw-timber area	3,424	3,385	3,244	3,598
Pole-timber area	751	668	846	721
Seedling and sapling area	280	291	248	301
Poorly stocked area	689	281	775	746
All classes	2,625	2,613	2,585	2,668
CUBIC-FOOT VOLUME 1/				
Large saw-timber area	1,052.4	1,129.5	1,051.1	1,004.4
Small saw-timber area	897.2	930.8	898.3	871.0
Pole-timber area	462.8	513.3	401.7	484.4
Seedling and sapling area	74.9	87.7	55.6	83.0
Poorly stocked area	133.6	78.9	135.8	146.1
All classes	607.5	662.3	592.3	584.5

1/ Growing stock only.

SOUTHERN REGION

Table 1.--Forest and nonforest area by county, 1948

County	Total land area 1/	Forest area		Nonforest area	
	Thousand acres	Thousand acres	Percent	Thousand acres	Percent
Alexander	143	67	47	76	53
Franklin	278	62	22	216	78
Gallatin	210	55	26	155	74
Hamilton	278	53	19	225	81
Hardin	117	45	38	72	62
Jackson	386	123	32	263	68
Johnson	221	79	36	142	64
Massac	157	44	28	113	72
Perry	283	61	22	222	78
Pope	244	100	41	144	59
Pulaski	131	34	26	97	74
Randolph	380	85	22	295	78
Saline	246	43	18	203	82
Union	265	101	38	164	62
White	321	30	9	291	91
Williamson	282	60	21	222	79
Total	3,942	1,042	26	2,900	74

1/ Source. Area of United States 1940, U. S. Bureau of the Census.

Table 2.--Commercial forest area by ownership class, 1948

Ownership class	Commercial forest area 1/	
	Thousand acres	Percent
Federal:		
National forest	147	14.3
Other	10	1.0
Total	157	15.3
State	4	.4
Private	869	84.3
All ownerships	1,030	100.0

1/ Does not include 12 thousand acres of forest land classified as noncommercial.

Table 3.--Commercial forest area by forest type and stand-size class, 1948

Forest type	Total		Large saw-timber area	Small saw-timber area	Pole-timber area	Seedling and sapling area	Poorly stocked area
	Thousand acres	Percent	Thousand acres				
Oak-hickory	537	52.1	103	101	182	126	25
White oak	49	4.8	17	9	11	5	7
Mixed hdwd.	85	8.3	54	6	15	10	0
Pin oak flats	129	12.5	40	28	30	24	7
Bottomland hdwd.	214	20.8	101	25	48	33	7
Scrub hdwd.	16	1.5	0	0	0	5	11
All types	1,030		315	169	286	203	57
Percent		100.0	30.6	16.4	27.8	19.7	5.5

Table 4.--Saw-timber volume by species and stand-size class, 1948

Species	Total		Large saw-timber area	Small saw-timber area	Pole-timber area	Seedling and sapling area	Poorly stocked area
	Million bd. ft.	Percent	Million board feet				
Redcedar and cypress	21	.8	17	3	0	1	0
White oak	410	15.2	263	97	40	5	5
Post-oak group	177	6.6	105	43	22	5	2
Black oak	293	10.9	180	76	24	11	2
Northern red oak	236	8.8	193	36	6	1	0
Other red oaks	366	13.6	251	77	14	20	4
Hickory	252	9.4	157	66	26	1/	3
Elm	140	5.2	90	22	22	6	1/
Soft maple	111	4.1	87	16	3	5	0
Sugar maple	33	1.2	26	4	3	0	0
Sycamore	105	3.9	77	12	12	4	0
Ash	63	2.3	52	6	4	1	0
Basswood and yellow-poplar 2/	71	2.6	65	1	5	0	0
Cottonwood	120	4.5	67	53	0	0	0
Black walnut	22	.8	16	5	1	0	0
Other hardwoods	271	10.1	207	55	9	0	0
All species	2,691		1,853	572	191	59	16
Percent		100.0	68.9	21.2	7.1	2.2	.6

1/ Less than .5 million board feet.
2/ Chiefly yellow-poplar.

SOUTHERN REGION

Table 5.--Saw-timber volume by species and tree-diameter class, 1948

Species	Total	12-14 inches	16-18 inches	20-22 inches	24-26 inches	28 inches and larger
	Million board feet					
Redcedar and cypress	21	7 1/	0	0	6	8
White oak	410	163	144	66	17	20
Post-oak group	177	63	54	33	19	8
Black oak	293	81	88	53	23	48
Northern red oak	236	55	65	36	43	37
Other red oaks	366	104	91	64	61	46
Hickory	252	123	60	51	11	7
Elm	140	52	44	19	14	11
Soft maple	111	31	29	29	22	0
Sugar maple	33	15	9	5	4	0
Sycamore	105	17	25	13	25	25
Ash	63	29	24	10	0	0
Basswood and yellow-poplar	71	11	21	18	11	10
Cottonwood	120	36	33	11	6	34
Black walnut	22	17	4	1	0	0
Other hardwoods	271	102	83	59	20	7
All species	2,691	906	774	468	282	261
Percent	100.0	33.7	28.7	17.4	10.5	9.7

1/ Includes 1 million board feet in 10-inch trees.

Table 6.--Hardwood saw-timber volume by species group and percentage distribution in log grades, 1948

Species group	Volume	Log grade 1	Log grade 2	Log grade 3
	Million bd. ft.	Percent		
White oaks 1/	587	8.4	15.2	76.4
Red oaks 2/	895	18.0	16.4	65.6
Other hardwoods	1,188	12.9	11.6	75.5
All hardwoods	2,670	13.5	13.9	72.6

1/ Includes white oak and post-oak group.
2/ Includes black oak, northern red oak, and other red oaks.

Table 7.--Total cubic volume of sound wood by species and class of material, 1948

Species	Total	Growing stock			Tops & limbs	Cull trees
		total	Saw-timber trees	Pole-timber trees		
	Million cubic feet					
Redcedar and cypress	4.5	4.5 1/	4.4	.1	--	0
White oak	147.9	93.3	62.7	30.6	44.0	10.6
Post-oak group	77.9	46.7	27.2	19.5	19.5	11.7
Black oak	98.4	60.2	44.7	15.5	31.9	6.3
Northern red oak	70.3	41.2	34.9	6.3	24.5	4.6
Other red oaks	145.6	91.3	55.8	35.5	39.8	14.5
Hickory	121.8	87.2	40.4	46.8	28.8	5.8
Elm	80.4	50.5	22.1	28.4	15.8	14.1
Soft maple	56.9	25.6	17.7	7.9	13.3	18.0
Sugar maple	17.8	10.9	5.0	5.9	3.6	3.3
Sycamore	34.4	18.3	15.9	2.4	11.4	4.7
Ash	41.1	25.7	10.2	15.5	7.2	8.2
Basswood and yellow-poplar	21.5	12.8	10.7	2.1	7.6	1.1
Cottonwood	37.0	21.9	18.6	3.3	13.1	2.0
Black walnut	12.9	9.2	3.7	5.5	2.6	1.1
Other hardwoods	152.9	82.9	42.6	40.3	30.6	39.4
Noncommercial species	1.4	--	--	--	--	1.4
All species	1,122.7	682.2	416.6	265.6	293.7	146.8
Percent	100.0	60.8	37.1	23.7	26.1	13.1

1/ Includes tops of redcedar and cypress trees.

Table 8.--Cubic volume of growing stock by species and stand-size class, 1948

Species	Total		Large saw-timber area	Small saw-timber area	Pole-timber area	Seedling and sapling area	Poorly stocked area
	Million cu. ft.	Percent	Million cubic feet				
Redcedar and cypress	4.5	.7	3.3	.8	.1	.3	0
White oak	93.3	13.7	46.2	24.3	19.8	1.4	1.6
Post-oak group	46.7	6.8	20.3	10.3	14.3	1.4	.4
Black oak	60.2	8.8	29.5	15.5	13.0	1.9	.3
Northern red oak	41.2	6.0	29.4	7.9	3.5	.4	0
Other red oaks	91.3	13.4	45.2	20.6	20.9	4.0	.6
Hickory	87.2	12.8	37.5	24.6	23.3	.7	1.1
Elm	50.5	7.4	24.6	10.6	12.4	2.8	.1
Soft maple	25.6	3.8	17.0	5.5	2.0	.9	.2
Sugar maple	10.9	1.6	7.6	1.8	1.4	.1	0
Sycamore	18.3	2.7	12.3	3.0	2.4	.6	1/
Ash	25.7	3.8	14.0	4.4	7.0	.3	1/
Basswood and yellow-poplar	12.8	1.9	10.8	.2	1.8	0	0
Cottonwood	21.9	3.2	10.1	11.3	.3	.1	.1
Black walnut	9.2	1.3	4.3	1.9	3.0	0	0
Other hardwoods	82.9	12.1	43.7	14.6	21.6	2.9	.1
All species	682.2		355.8	157.3	146.8	17.8	4.5
Percent		100.0	52.1	23.1	21.5	2.6	.7

1/ Less than .05 million cubic feet.

Table 9.--Cubic volume of growing stock by stand-size class and tree-diameter class, 1948

Stand-size class	Total	6-8 inches	10 inches	12-14 inches	16-18 inches	20-22 inches	24-26 inches	28 inches and larger
	Million cubic feet							
Large saw-timber area	355.9	39.5	33.9	61.5	88.0	60.0	36.6	36.4
Small saw-timber area	157.2	33.1	32.4	63.2	21.2	6.2	1.1	0
Pole-timber area	146.8	82.4	34.0	19.6	6.0	1.5	2.4	.9
Seedling and sapling area	17.8	5.4	3.1	3.2	3.5	1.3	1.3	0
Poorly stocked area	4.5	1.5	.5	1.0	.6	.6	.3	0
All classes	682.2	161.9	103.9	148.5	119.3	69.6	41.7	37.3
Percent	100.0	23.7	15.2	21.8	17.5	10.2	6.1	5.5

Table 10.--Average volume per acre by stand-size class, 1948

Stand-size class	Average volume per acre	
	Board feet	Cubic feet 1/
Large saw-timber area	5,883	1,129.5
Small saw-timber area	3,385	930.8
Pole-timber area	668	513.3
Seedling and sapling area	291	87.7
Poorly stocked area	281	78.9
All classes	2,613	662.3

1/ Growing stock only.

CLAYPAN REGION

Table 1.--Forest and nonforest area by county, 1948

County	Total land area 1/	Forest area		Nonforest area	
	Thousand acres	Thousand acres	Percent	Thousand acres	Percent
Bond	245	37	15	208	85
Calhoun	166	72	43	94	57
Clark	323	58	18	265	82
Clay	297	46	15	251	85
Clinton	319	62	19	257	81
Crawford	283	40	14	243	86
Cumberland	222	30	14	192	86
Edwards	144	20	14	124	86
Effingham	309	47	15	262	85
Fayette	460	84	18	376	82
Greene	348	54	16	294	84
Jasper	317	36	11	281	89
Jefferson	367	61	17	306	83
Jersey	239	66	28	173	72
Lawrence	239	34	14	205	86
Macoupin	558	95	17	463	83
Madison	468	57	12	411	88
Marion	371	62	17	309	83
Monroe	243	58	24	185	76
Montgomery	452	46	10	406	90
Richland	233	30	13	203	87
St. Clair	429	55	13	374	87
Shelby	494	55	11	439	89
Wabash	141	14	10	127	90
Washington	362	63	17	299	83
Wayne	458	74	16	384	84
Total	8,487	1,356	16	7,131	84

1/ Source: Area of United States 1940, U. S. Bureau of the Census.

Table 2.--Commercial forest area by ownership class, 1948

Ownership class	Commercial forest area 1/	
	Thousand acres	Percent
Federal:		
National forest	0	0
Other	6	.4
Total	6	.4
State	0	0
Private	1,341	99.6
All ownerships	1,347	100.0

1/ Does not include 9 thousand acres of forest land classified as noncommercial.

Table 3.--Commercial forest area by forest type and stand-size class, 1948

Forest type	Total		Large saw-timber area	Small saw-timber area	Pole-timber area	Seedling and sapling area	Poorly stocked area
	Thousand acres	Percent	Thousand acres				
Oak-hickory	655	48.6	168	69	199	171	48
White oak	125	9.3	72	23	17	13	0
Mixed hdwd.	131	9.7	14	19	58	40	0
Pin oak flats	141	10.5	59	37	33	0	12
Bottomland hdwd.	271	20.1	127	32	50	26	36
Scrub hdwd.	24	1.8	0	0	0	0	24
All types	1,347		440	180	357	250	120
Percent		100.0	32.6	13.4	26.5	18.6	8.9

Table 4.--Saw-timber volume by species and stand-size class, 1948

Species	Total		Large saw-timber area	Small saw-timber area	Pole-timber area	Seedling and sapling area	Poorly stocked area
	Million bd. ft.	Percent	Million board feet				
White oak	690	19.8	485	129	40	30	6
Post-oak group	323	9.3	169	67	77	6	4
Black oak	418	12.0	329	59	30	0	0
Northern red oak	151	4.3	143	8	0	0	0
Other red oaks	334	9.6	169	101	46	6	12
Hickory	305	8.8	217	59	19	0	10
Elm	332	9.5	226	37	22	16	31
Soft maple	303	8.7	243	24	8	0	28
Sugar maple	31	.9	17	12	2	0	0
Sycamore	108	3.1	103	5	0	0	0
Ash	125	3.6	82	41	2	0	0
Basswood and yellow-poplar	5	.2	2	3	0	0	0
Cottonwood	46	1.3	30	0	12	2	2
Black walnut	78	2.2	64	9	3	2	0
Other hardwoods	233	6.7	162	30	41	0	0
All species	3,482		2,441	584	302	62	93
Percent		100.0	70.1	16.8	8.7	1.8	2.6

Table 5.--Saw-timber volume by species and tree-diameter class, 1948

Species	Total	12-14 inches	16-18 inches	20-22 inches	24-26 inches	28 inches and larger
	Million board feet					
White oak	690	251	270	95	44	30
Post-oak group	323	102	125	72	13	11
Black oak	418	78	145	96	65	34
Northern red oak	151	15	43	36	23	34
Other red oaks	334	100	79	45	101	9
Hickory	305	107	127	47	13	11
Elm	332	122	104	68	0	38
Soft maple	303	55	64	58	48	78
Sugar maple	31	8	23	0	0	0
Sycamore	108	13	28	34	12	21
Ash	125	53	34	14	24	0
Basswood and yellow-poplar	5	5	0	0	0	0
Cottonwood	46	9	0	9	10	18
Black walnut	78	51	16	5	6	0
Other hardwoods	233	38	49	37	75	34
All species	3,482	1,007	1,107	616	434	318
Percent	100.0	28.9	31.8	17.7	12.5	9.1

Table 6.--Hardwood saw-timber volume by species group and percentage distribution in log grades, 1948

Species group	Volume	Log grade 1	Log grade 2	Log grade 3
	Million bd. ft.	Percent		
White oaks 1/	1,013	3.5	28.0	68.5
Red oaks 2/	903	5.8	21.4	72.8
Other hardwoods	1,566	13.4	27.2	59.4
All hardwoods	3,482	8.0	25.8	66.2

1/ Includes white oak and post-oak group.
2/ Includes black oak, northern red oak, and other red oaks.

Table 7.--Total cubic volume of sound wood by species and class of material, 1948

Species	Total	Growing stock				Cull trees
		Total	Saw-timber trees	Pole-timber trees	Tops & limbs	
	Million cubic feet					
Redcedar	.1	.1	0	.1	0	0
White oak	225.9	140.7	104.9	35.8	73.6	11.6
Post-oak group	129.3	75.8	49.9	25.9	35.6	17.9
Black oak	129.7	81.3	63.4	17.9	45.3	3.1
Northern red oak	43.4	23.8	22.1	1.7	15.5	4.1
Other red oaks	126.3	72.6	51.2	21.4	36.5	17.2
Hickory	116.5	78.0	48.3	29.7	34.5	4.0
Elm	142.2	88.7	52.0	36.7	37.1	16.4
Soft maple	141.6	66.0	47.6	18.4	35.8	39.8
Sugar maple	12.2	8.2	5.0	3.2	3.5	.5
Sycamore	32.3	20.5	16.5	4.0	11.8	0
Ash	69.2	44.6	19.7	24.9	14.1	10.5
Basswood and yellow-poplar	5.9	2.8	.7	2.1	.5	2.6
Cottonwood	13.2	7.7	6.9	.8	4.8	.7
Black walnut	39.6	25.1	12.5	12.6	8.9	5.6
Other hardwoods	109.9	61.9	35.1	26.8	25.2	22.8
Noncommercial species	2.3	--	--	--	--	2.3
All species	1,339.6	797.8	535.8	262.0	382.7	159.1
Percent	100.0	59.5	40.0	19.5	28.6	11.9

Table 8.--Cubic volume of growing stock by species and stand-size class, 1948

Species	Total		Large saw-timber area	Small saw-timber area	Pole-timber area	Seedling and sapling area	Poorly stocked area
	Million cu. ft.	Percent	Million cubic feet				
Redcedar and cypress	.1	0	0	0	.1	0	0
White oak	140.7	17.6	86.9	30.6	17.4	4.9	.9
Post-oak group	75.8	9.5	32.1	19.4	22.2	1.2	.9
Black oak	81.3	10.2	51.1	15.5	14.6	.1	0
Northern red oak	23.8	3.0	21.2	1.9	.7	0	0
Other red oaks	72.6	9.1	27.1	26.0	16.5	.9	2.1
Hickory	78.0	9.8	49.0	16.0	11.3	0	1.7
Elm	88.7	11.1	52.6	14.6	13.5	3.0	5.0
Soft maple	66.0	8.3	52.7	5.8	3.2	0	4.3
Sugar maple	8.2	1.0	2.8	3.5	1.9	0	0
Sycamore	20.5	2.6	16.8	.9	2.8	0	0
Ash	44.6	5.6	17.8	14.1	12.5	.2	0
Basswood and yellow-poplar	2.8	.4	1.8	.7	0	.3	0
Cottonwood	7.7	1.0	5.0	0	2.1	.3	.3
Black walnut	25.1	3.1	14.5	3.4	6.0	.7	.5
Other hardwoods	61.9	7.7	31.1	9.3	18.6	2.3	.6
All species	797.8		462.5	161.7	143.4	13.9	16.3
Percent		100.0	58.0	20.3	18.0	1.7	2.0

Table 9.--Cubic volume of growing stock by stand-size class and tree-diameter class, 1948

Stand-size class	Total	6-8 inches	10 inches	12-14 inches	16-18 inches	20-22 inches	24-26 inches	28 inches and larger
	Million cubic feet							
Large saw-timber area	462.5	51.7	39.2	75.9	118.4	85.3	47.3	44.7
Small saw-timber area	161.7	31.0	37.8	56.7	28.7	2.4	3.7	1.4
Pole-timber area	143.4	67.4	28.5	24.2	13.0	3.8	6.5	0
Seedling and sapling area	13.9	2.5	2.0	3.3	5.7	.4	0	0
Poorly stocked area	16.3	1.6	.3	3.8	4.6	0	6.0	0
All classes	797.8	154.2	107.8	163.9	170.4	91.9	63.5	46.1
Percent	100.0	19.3	13.5	20.5	21.4	11.5	8.0	5.8

Table 10.--Average volume per acre by stand-size class, 1948

Stand-size class	Average volume per acre	
	Board feet	Cubic feet 1/
Large saw-timber area	5,548	1,051.1
Small saw-timber area	3,244	898.3
Pole-timber area	846	401.7
Seedling and sapling area	248	55.6
Poorly stocked area	775	135.8
All classes	2,585	592.3

1/ Growing stock only.

PRAIRIE REGION

Table 1.--Forest and nonforest area by county, 1948

County	Total land area 1/	Forest area		Nonforest area	
	Thousand acres	Thousand acres	Percent	Thousand acres	Percent
Adams	554	93	17	461	83
Boone	181	6	3	175	97
Brown	196	42	21	154	79
Bureau	555	35	6	520	94
Carroll	300	22	7	278	93
Cass	237	46	19	191	81
Champaign	640	7	1	633	99
Christian	454	13	3	441	97
Coles	324	23	7	301	93
Cook	611	30	5	581	95
DeKalb	407	5	1	402	99
DeWitt	255	11	4	244	96
Douglas	269	5	2	264	98
DuPage	212	11	5	201	95
Edgar	402	23	6	379	94
Ford	312	1	0	311	100
Fulton	559	96	17	463	83
Grundy	276	10	4	266	96
Hancock	510	46	9	464	91
Henderson	244	35	14	209	86
Henry	529	17	3	512	97
Iroquois	718	13	2	705	98
Jo Daviess	393	60	15	333	85
Kane	330	10	3	320	97
Kankakee	435	16	4	419	96
Kendall	205	8	4	197	96
Knox	466	44	9	422	91
Lake	292	20	7	272	93
LaSalle	738	26	4	712	96
Lee	467	9	2	458	98

Table 1.--Forest and nonforest area by county, 1948, continued

County	Total land area 1/	Forest area		Nonforest area	
	Thousand acres	Thousand acres	Percent	Thousand acres	Percent
Livingston	668	9	1	659	99
Logan	398	11	3	387	97
McDonough	372	40	11	332	89
McHenry	391	16	4	375	96
McLean	751	18	2	733	98
Macon	369	12	3	357	97
Marshall	253	28	11	225	89
Mason	346	44	13	302	87
Menard	200	15	8	185	92
Mercer	356	28	8	328	92
Morgan	362	30	8	332	92
Moultrie	221	8	4	213	96
Ogle	484	29	6	455	94
Peoria	399	52	13	347	87
Piatt	280	7	2	273	98
Pike	530	97	18	433	82
Putnam	106	18	17	88	83
Rock Island	269	34	13	235	87
Sangamon	563	24	4	539	96
Schuyler	278	69	25	209	75
Scott	161	21	13	140	87
Stark	186	6	3	180	97
Stephenson	363	16	4	347	96
Tazewell	418	38	9	380	91
Vermilion	575	29	5	546	95
Warren	347	25	7	322	93
Whiteside	442	16	4	426	96
Will	541	23	4	518	96
Winnebago	333	22	7	311	93
Woodford	344	30	9	314	91
Total	23,377	1,598	7	21,779	93

1/ Source: Area of United States 1940, U. S. Bureau of the Census

Table 2.--Commercial forest area by ownership class, 1948

Ownership class	Commercial forest area 1/	
	Thousand acres	Percent
Federal:		
National forest	0	0
Other	16	1.0
Total	16	1.0
State	6	.4
Private	1,542	98.6
All ownerships	1,564	100.0

1/ Does not include 34 thousand acres of forest land classified as noncommercial.

Table 3.--Commercial forest area by forest type and stand-size class, 1948

Forest type	Total		Large saw-timber area	Small saw-timber area	Pole-timber area	Seedling and sapling area	Poorly stocked area
	Thousand acres	Percent	Thousand acres				
Oak-hickory	667	42.6	199	99	130	184	55
White oak	195	12.5	97	67	15	0	16
Mixed hdwd.	323	20.7	102	36	123	46	16
Pin oak flats	5	.3	5	0	0	0	0
Bottomland hdwd.	282	18.0	93	22	65	31	71
Scrub hdwd.	92	5.9	0	0	7	15	70
All types	1,564		496	224	340	276	228
Percent		100.0	31.7	14.3	21.8	17.6	14.6

Table 4.--Saw-timber volume by species and stand-size class, 1948

Species	Total		Large saw-timber area	Small saw-timber area	Pole-timber area	Seedling and sapling area	Poorly stocked area
	Million bd. ft.	Percent	Million board feet				
Redcedar	19	.5	0	19	0	0	0
White oak	1,017	24.4	644	287	35	14	37
Post-oak group 1/	370	8.9	295	41	2	0	32
Black oak	384	9.2	250	92	28	3	11
Northern red oak	649	15.6	494	89	51	15	0
Other red oaks	14	.3	8	6	0	0	0
Hickory	143	3.4	68	32	31	8	4
Elm	548	13.1	362	96	56	13	21
Soft maple	219	5.3	185	25	9	0	0
Sugar maple	167	4.0	118	19	1	26	3
Sycamore	101	2.4	52	8	0	0	41
Ash	85	2.0	67	14	4	0	0
Basswood and yellow-poplar 2/	105	2.5	82	10	7	0	6
Cottonwood	133	3.2	99	32	2	0	0
Black walnut	67	1.6	50	10	0	2	5
Other hardwoods	152	3.6	95	26	19	2	10
All species	4,173		2,869	806	245	83	170
Percent		100.0	68.7	19.3	5.9	2.0	4.1

1/ Chiefly bur oak.
2/ Chiefly basswood.

Table 5.--Saw-timber volume by species and tree-diameter class, 1948

Species	Total	12-14 inches	16-18 inches	20-22 inches	24-26 inches	28 inches and larger
	Million board feet					
Redcedar	19	14 1/	5	0	0	0
White oak	1,017	362	327	164	94	70
Post-oak group	370	65	101	112	41	51
Black oak	384	85	124	99	72	4
Northern red oak	649	138	193	118	102	98
Other red oaks	14	5	4	5	0	0
Hickory	143	95	42	6	0	0
Elm	548	161	172	95	77	43
Soft maple	219	71	60	43	35	10
Sugar maple	167	57	51	43	0	16
Sycamore	101	3	9	18	45	26
Ash	85	27	31	23	4	0
Basswood and yellow-poplar	105	21	25	27	8	24
Cottonwood	133	19	38	50	26	0
Black walnut	67	23	27	9	0	8
Other hardwoods	152	63	17	25	40	7
All species	4,173	1,209	1,226	837	544	357
Percent	100.0	29.0	29.4	20.1	13.0	8.5

1/ Includes 4 million board feet in 10-inch trees.

Table 6.--Hardwood saw-timber volume by species group and percentage distribution in log grades, 1948

Species group	Volume	Log grade 1	Log grade 2	Log grade 3
	Million bd. ft.	Percent		
White oaks [1]	1,387	7.7	14.4	77.9
Red oaks [2]	1,047	9.6	21.7	68.7
Other hardwoods	1,720	9.3	20.3	70.4
All hardwoods	4,154	8.9	18.8	72.3

1/ Includes white oak and post-oak group.
2/ Includes black oak, northern red oak, and other red oaks.

Table 7.--Total cubic volume of sound wood by species and class of material, 1948

Species	Total	Growing stock				Cull trees
		Total	Saw-timber trees	Pole-timber trees	Tops & limbs	
	Million cubic feet					
Redcedar	7.2	7.1	5.8 1/	1.3	--	.1
White oak	320.8	193.2	152.6	40.6	105.9	21.7
Post-oak group	113.2	63.1	54.8	8.3	38.3	11.8
Black oak	138.1	77.3	57.8	19.5	40.5	20.3
Northern red oak	190.6	112.8	95.6	17.2	66.3	11.5
Other red oaks	7.1	4.6	2.1	2.5	1.5	1.0
Hickory	71.0	49.5	22.9	26.6	16.0	5.5
Elm	261.1	147.4	86.0	61.4	60.3	53.4
Soft maple	116.7	56.3	34.0	22.3	24.6	35.8
Sugar maple	58.5	36.3	25.5	10.8	17.9	4.3
Sycamore	30.5	17.2	15.0	2.2	10.5	2.8
Ash	43.7	26.4	13.2	13.2	9.3	8.0
Basswood and yellow-poplar	48.6	19.2	15.6	3.6	10.9	18.5
Cottonwood	35.8	20.4	20.2	.2	14.1	1.3
Black walnut	40.9	25.8	10.4	15.4	7.3	7.8
Other hardwoods	101.3	57.6	23.5	34.1	16.5	27.2
Noncommercial species	10.9	--	--	--	--	10.9
All species	1,596.0	914.2	635.0	279.2	439.9	241.9
Percent	100.0	57.3	39.8	17.5	27.6	15.1

1/ Includes tops of redcedar trees.

Table 8.--Cubic volume of growing stock by species and stand-size class, 1948

Species	Total		Large saw-timber area	Small saw-timber area	Pole-timber area	Seedling and sapling area	Poorly stocked area
	Million cu. ft.	Percent	Million cubic feet				
Redcedar	7.1	.8	0	6.7	0	0	.4
White oak	193.2	21.1	104.6	58.8	20.1	3.6	6.1
Post-oak group	63.1	6.9	45.0	9.3	3.6	0	5.2
Black oak	77.3	8.5	38.2	19.2	17.4	.9	1.6
Northern red oak	112.8	12.3	77.6	18.7	13.3	3.2	0
Other red oaks	4.6	.5	2.7	1.3	.6	0	0
Hickory	49.5	5.4	17.8	13.8	14.0	3.3	.6
Elm	147.4	16.1	69.8	25.5	43.8	4.2	4.1
Soft maple	56.3	6.2	39.0	11.0	6.3	0	0
Sugar maple	36.3	4.0	22.4	5.3	4.4	3.8	.4
Sycamore	17.2	1.9	7.7	1.4	1.6	0	6.5
Ash	26.4	2.9	16.7	2.9	6.6	.2	0
Basswood and yellow-poplar	19.2	2.1	13.2	2.8	1.9	.3	1.0
Cottonwood	20.4	2.2	14.8	5.3	.3	0	0
Black walnut	25.8	2.8	11.0	3.0	7.2	.3	4.3
Other hardwoods	57.6	6.3	17.7	10.1	23.6	3.1	3.1
All species	914.2		498.2	195.1	164.7	22.9	33.3
Percent		100.0	54.5	21.3	18.0	2.5	3.7

Table 9.--Cubic volume of growing stock by stand-size class and tree-diameter class, 1948

Stand-size class	Total	6-8 inches	10 inches	12-14 inches	16-18 inches	20-22 inches	24-26 inches	28 inches and larger
	Million cubic feet							
Large saw-timber area	498.2	34.6	35.7	80.4	139.0	98.0	64.3	46.2
Small saw-timber area	195.1	33.1	34.0	83.5	30.7	9.9	2.4	1.5
Pole-timber area	164.7	74.6	51.2	22.5	9.4	5.4	1.6	0
Seedling and sapling area	22.9	7.9	1.5	7.1	2.0	3.1	0	1.3
Poorly stocked area	33.3	4.0	3.9	3.0	5.7	5.4	10.2	1.1
All classes	914.2	154.2	126.3	196.5	186.8	121.8	78.5	50.1
Percent	100.0	16.9	13.8	21.5	20.4	13.3	8.6	5.5

Table 10.--Average volume per acre by stand-size class, 1948

Stand-size class	Average volume per acre	
	Board feet	Cubic feet 1/
Large saw-timber area	5,784	1,004.4
Small saw-timber area	3,598	871.0
Pole-timber area	721	484.4
Seedling and sapling area	301	83.0
Poorly stocked area	746	146.1
All classes	2,668	584.5

1/ Growing stock only.

FOREST SURVEY PROCEDURE

The inventory of the forest resources of Illinois was made during the period October 1947 to May 1948. A sampling procedure was used involving an office study of aerial photographs and a field examination of randomly selected forest and nonforest plots.

The proportion of forest land in each county was obtained by placing a transparent template marked with uniformly spaced dots over aerial photographs and counting the number of dots falling on forest and nonforest areas. The percentage of the forest dots in a county applied to the total land area gave a preliminary estimate of the forest area. This was later adjusted after field examination.

The location of a selected number of dots falling on forest land was marked on the photographs. The acre surrounding each marked dot was examined under stereoscope and was classified by stand-size class on the basis of the height, crown width, and density of trees on the plot. Plots to be examined in the field were randomly drawn from those classified under stereoscope. In making this selection the greatest weight was given to the stand-size classes containing the heaviest timber volume. In addition, a number of nonforest plots were selected for field examination to measure the movement of open land to forest since the date of photography.

Through the cooperation of the Illinois Agricultural Experiment Station and the Illinois Division of Forestry, the sampling intensity of the Southern region was increased to provide more accurate forest area and timber volume data for this important area.

The locations of the selected field plots were marked on the photographs, which were then sent to the field. Crews of two men each located these points on the ground. On forest land a 1/5-acre plot was established on which forest conditions were described and the species, size, quality, and growth of trees were recorded.

The following tabulation gives the number of dots and plots examined for each of the three regions and for the state.

	Total	Southern region	Claypan region	Prairie region
Number of dots counted to determine forest and nonforest area	191,350	35,702	41,006	114,642
Number of forest plots stereoscopically examined on photos	5,933	2,999	1,232	1,702
Number of forest plots field examined	1,033	542	212	279
Number of nonforest plots field examined	266	109	70	87

ACCURACY OF DATA

Statistical analysis of forest area and timber volume data shows the following sampling errors [1] for each of three regions and for the state:

Region	Total forest area		Total saw-timber volume	
	M acres	Percent	Million bd. ft.	Percent
Southern	± 24	± 2.35	± 129	± 4.80
Claypan	± 36	± 2.66	± 226	± 6.50
Prairie	± 45	± 2.81	± 277	± 6.64
State	± 63	± 1.57	± 380	± 3.68

These estimates of sampling error do not include errors resulting from the development and application of volume tables and cull factors, or from mistakes in measurement or judgment. All phases of field and office work were closely supervised to keep these errors to a minimum. Since the percentage error increases with each subdivision of the total, small acreages or volumes may have large errors and may therefore indicate only relative magnitudes.

1/ At one standard deviation; i.e., the chances are two out of three that, if the survey were repeated, the total forest area or volume figures would not differ more than the errors shown in this table.

EXPLANATION OF TERMS USED

Forest land - Land bearing forest growth or land from which the forest has been removed but which shows evidence of past forest occupancy and which is not now in other use. To qualify as forest, an area must: (1) be at least 100 feet wide; (2) be at least one acre in area; (3) have a sufficient number of trees to provide 10 percent crown coverage; or (4) lacking 10 percent crown coverage, be likely to remain in forest use.

Commercial forest land - Forest land bearing or capable of bearing timber of commercial character and economically available now or prospectively for commercial use and not withdrawn from such use.

Noncommercial forest land - Forest land not qualifying as commercial forest land. Two classes of forest area are included: (1) commercially valuable forest land withdrawn from timber use for such purposes as parks, game refuges, or reservoir protection; and (2) forest land which because of poor growing conditions will not produce trees of commercial quality.

Forest types

Oak-hickory - Stands of hardwoods in which oaks and hickories comprise at least 60 percent of the dominant and codominant trees.

White oak - Stands in which white oak (Quercus alba) comprises at least 60 percent of the dominant and codominant trees.

Mixed hardwoods - Stands of mixed hardwood species not qualifying for other hardwood types. Principal species include elm, maple, basswood, and black walnut in mixture with oaks and hickories.

Pin oak flats - Stands of pin oak and other hardwoods occurring on poorly drained flats. Associate species include soft maple, elm, hickory, and sweetgum.

Bottomland hardwoods - Stands on the alluvial bottoms of rivers and streams. The principal species include sycamore, willow, elm, blackgum, sweetgum, soft maple, oaks, hickory, cottonwood, and cypress.

Scrub hardwoods - Stands in which scrub oak or other noncommercial tree species comprise at least 60 percent of the dominant and codominant trees.

Tree classes

Sound saw-timber tree - A coniferous tree at least 9.0 inches d.b.h. (diameter outside bark at 4.5 feet above ground), or a hardwood tree at least 11.0 inches d.b.h., with a sound butt log at least 8 feet long, or with at least half of the gross volume of the tree in sound material.

Sound pole-timber tree - A tree at least 5.0 inches d.b.h. but less than saw-timber size, which now is or gives promise of becoming a sound merchantable tree.

Cull tree - A tree that does not qualify as a sound pole-timber or saw-timber tree because of poor form, limbiness, rot, or other defect.

Volume estimates

Board-foot volume includes the volume of that portion of saw-timber trees merchantable for sawlogs. Volume deductions have been made for rot, crook, and other defects. Board-foot volumes are shown in the International 1/4-inch log rule, which approximates green lumber tally.

Cubic-foot volume

Total volume includes the sound wood inside bark in both sound and cull living trees 5.0 inches d.b.h. and larger from the stump to a minimum top diameter of 4.0 inches inside bark. It therefore includes the upper stems of coniferous trees and the upper stems and limbs of hardwoods.

Growing stock includes the volume of sound wood inside bark in: (1) the saw-timber portion of sound trees, (2) the upper stem of sound saw-timber-sized conifers to a minimum top diameter of 4.0 inches inside bark, and (3) the sound pole-timber trees to the same top diameter.

Stand-size class

Large saw timber - stands having a minimum net volume of 1500 board feet per acre in living merchantable trees, and having more than half of this volume in trees 15.0 inches d.b.h. and larger.

Small saw timber - stands having a net volume of 1500 board feet per acre in living merchantable trees, and having at least half of this volume in trees smaller than 15.0 inches in d.b.h.

Pole timber - stands having a net volume of less than 1500 board feet per acre in living merchantable trees, but which are at least 10 percent stocked with pole-sized and larger trees. At least half the stocking must be in pole-sized trees.

Seedlings and saplings - stands not qualifying either for saw timber or pole timber but having at least 300 seedlings and saplings of commercial species per acre.

Poorly stocked - commercial forest land not qualifying for any other class. Denuded areas that are not likely to be put to a nonforest use are classed as poorly stocked.

Hardwood log grades

Grade 1 - Logs at least 14.0 inches in diameter inside bark with five-sixths of the surface on the three best faces clear of defect in not more than two cuttings. Lumber from such logs will normally grade at least 60 percent No. 1 common and better.

Grade 2 - Logs at least 12 inches in diameter inside bark with two-thirds of the surface on the three best faces clear of defect in not more than three cuttings. Lumber from such logs will normally grade at least 35 percent No. 1 common and better.

Grade 3 - Merchantable logs at least 8.0 inches in diameter inside bark which do not meet the requirements of higher grades. Such logs will normally produce less than 35 percent No. 1 common and better lumber or will be suitable only for ties or timbers.

Species listed

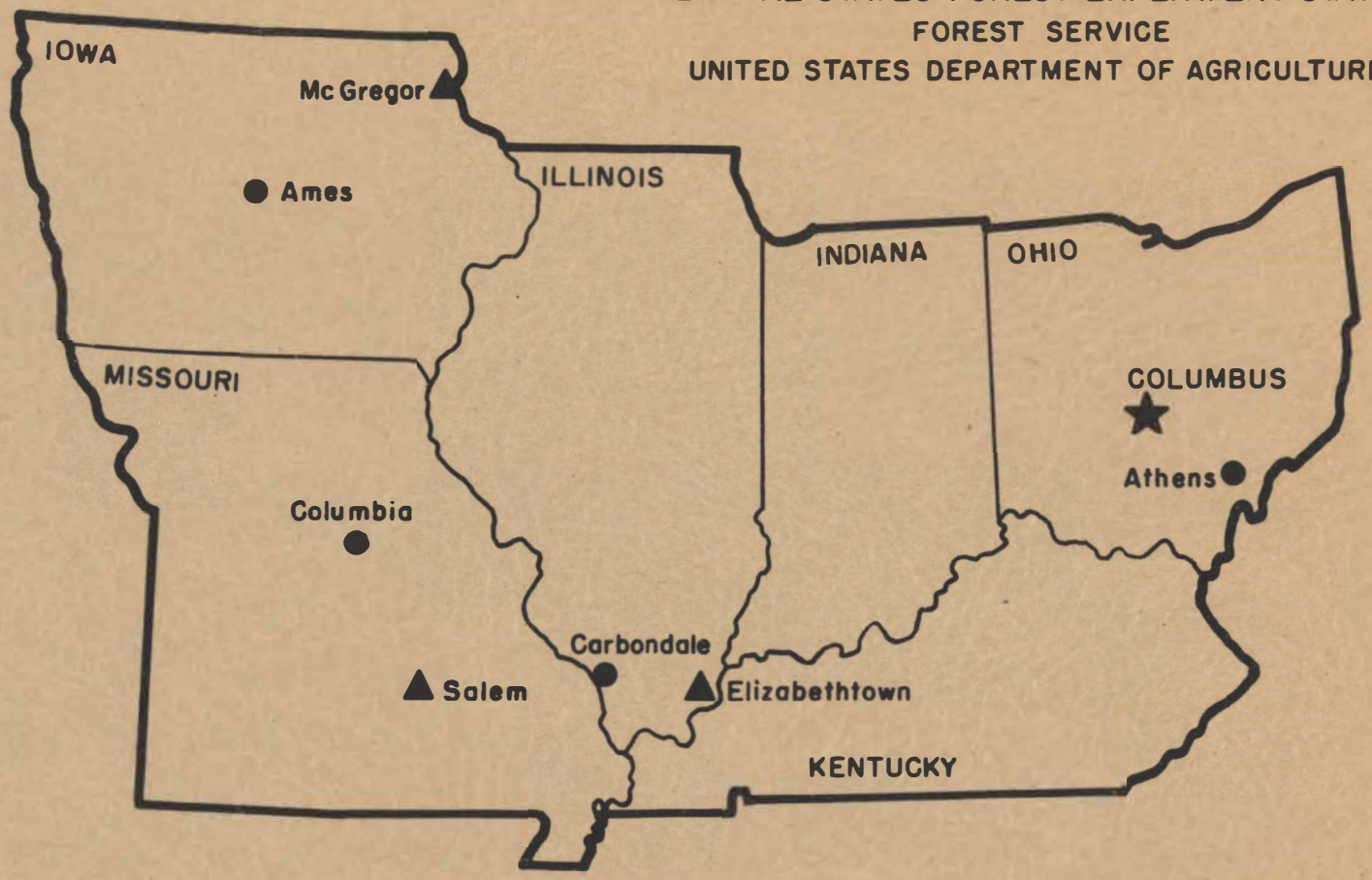
Redcedar	-	Juniperus virginiana
Cypress	-	Taxodium distichum
White oak	-	Quercus alba
Post-oak group includes:		
Post oak	-	Quercus stellata
Swamp white oak	-	Quercus bicolor
Swamp chestnut oak	-	Quercus prinus
Overcup oak	-	Quercus lyrata
Bur oak	-	Quercus macrocarpa
Chinquapin oak	-	Quercus muehlenbergii
Chestnut oak	-	Quercus montana
Black oak	-	Quercus velutina
Northern red oak includes:		
Northern red oak	-	Quercus borealis
Swamp red oak	-	Quercus falcata var. pagodaefolia
Other red oaks include:		
Southern red oak	-	Quercus falcata
Pin oak	-	Quercus palustris
Scarlet oak	-	Quercus coccinea
Willow oak	-	Quercus phellos
Water oak	-	Quercus nigra
Shingle oak	-	Quercus imbricaria
Hickory	-	Carya species
Elm	-	Ulmus species
Soft maple includes:		
Red maple	-	Acer rubrum
Silver maple	-	Acer saccharinum
Boxelder	-	Acer negundo
Sugar maple	-	Acer saccharophorum
Sycamore	-	Platanus occidentalis
Ash	-	Fraxinus species
Basswood and yellow-poplar includes:		
Basswood	-	Tilia species
Yellow-poplar	-	Liriodendron tulipifera
Cucumbertree	-	Magnolia acuminata

Species listed (continued)

Cottonwood - Populus deltoides
Black walnut - Juglans nigra
Other hardwoods - include all other commercial hardwood species.

Noncommercial species - include species that do not normally have commercial value such as hawthorn, redbud, ironwood, alder, and service berry.

TERRITORY SERVED BY THE
CENTRAL STATES FOREST EXPERIMENT STATION
FOREST SERVICE
UNITED STATES DEPARTMENT OF AGRICULTURE



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